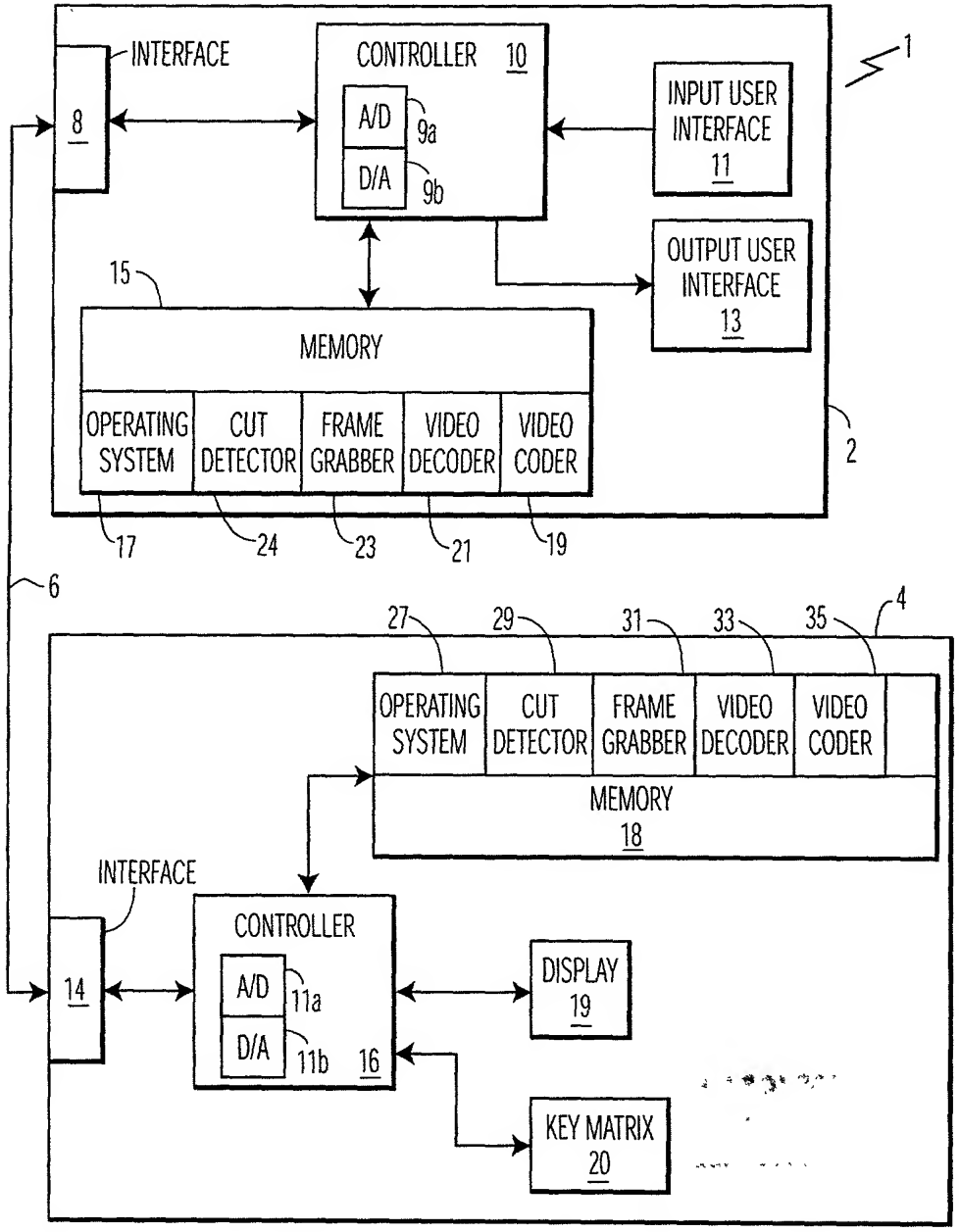
INTERFACE
8
CONTROLLER 10
A/D
9a
D/A
9b
INPUT USER INTERFACE 11
OUTPUT USER INTERFACE 13
1
2
15
MEMORY
OPERATING SYSTEM
CUT DETECTOR
FRAME GRABBER
VIDEO DECODER
VIDEO CODER
17
24
23
21
19
6
4
27
29
31
33
35
OPERATING SYSTEM
CUT DETECTOR
FRAME GRABBER
VIDEO DECODER
VIDEO CODER
MEMORY 18
INTERFACE
14
CONTROLLER
A/D
11a
D/A
11b
16
DISPLAY 19
KEY MATRIX 20

FIG. 1

20020507.9T6620074

Cr#	SeparationThld	UnicolorInSuccThld	MinCommericalThld	MaxCommercialThld	RestartThld	DisForSuccThld
Cr1	ST1	UIST1	MinCT1	MaxCT1	RT1	DFST1
Cr2	ST2	UIST2	MinCT2	MaxCT2	RT2	DFST2
Crn	STn	UISTn	MinCTn	MaxCTn	RTn	DFSTn

FIG. 2

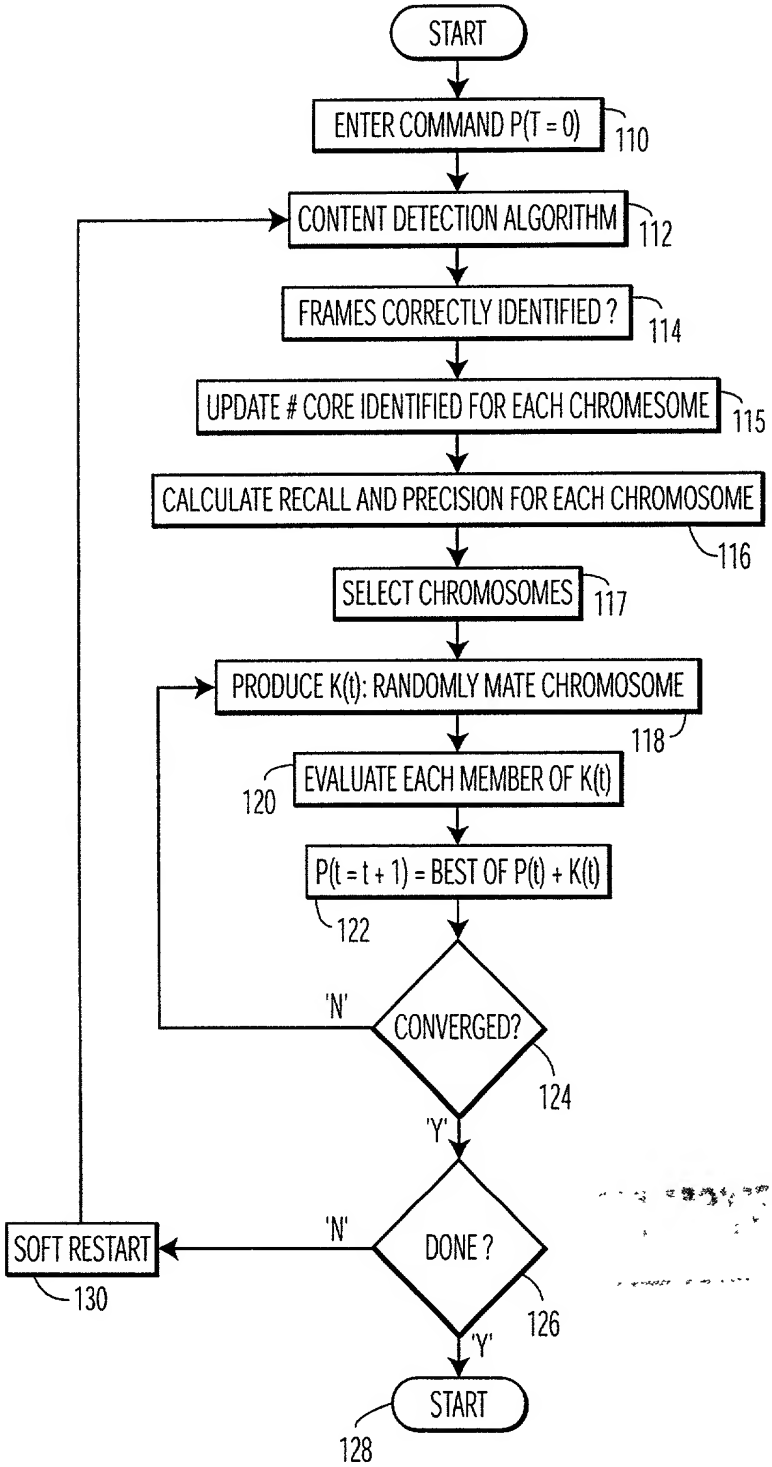
START
ENTER COMMAND P(T = 0)
110
CONTENT DETECTION ALGORITHM
112
FRAMES CORRECTLY IDENTIFIED ?
114
UPDATE # CORE IDENTIFIED FOR EACH CHROMESOME
115
CALCULATE RECALL AND PRECISION FOR EACH CHROMOSOME
116
SELECT CHROMOSOMES
117
PRODUCE K(t): RANDOMLY MATE CHROMOSOME
118
120
EVALUATE EACH MEMBER OF K(t)
P(t = t + 1) = BEST OF P(t) + K(t)
122
'N'
CONVERGED?
124
'Y'
'N'
DONE ?
126
SOFT RESTART
130
'Y'
START
128

FIG. 3

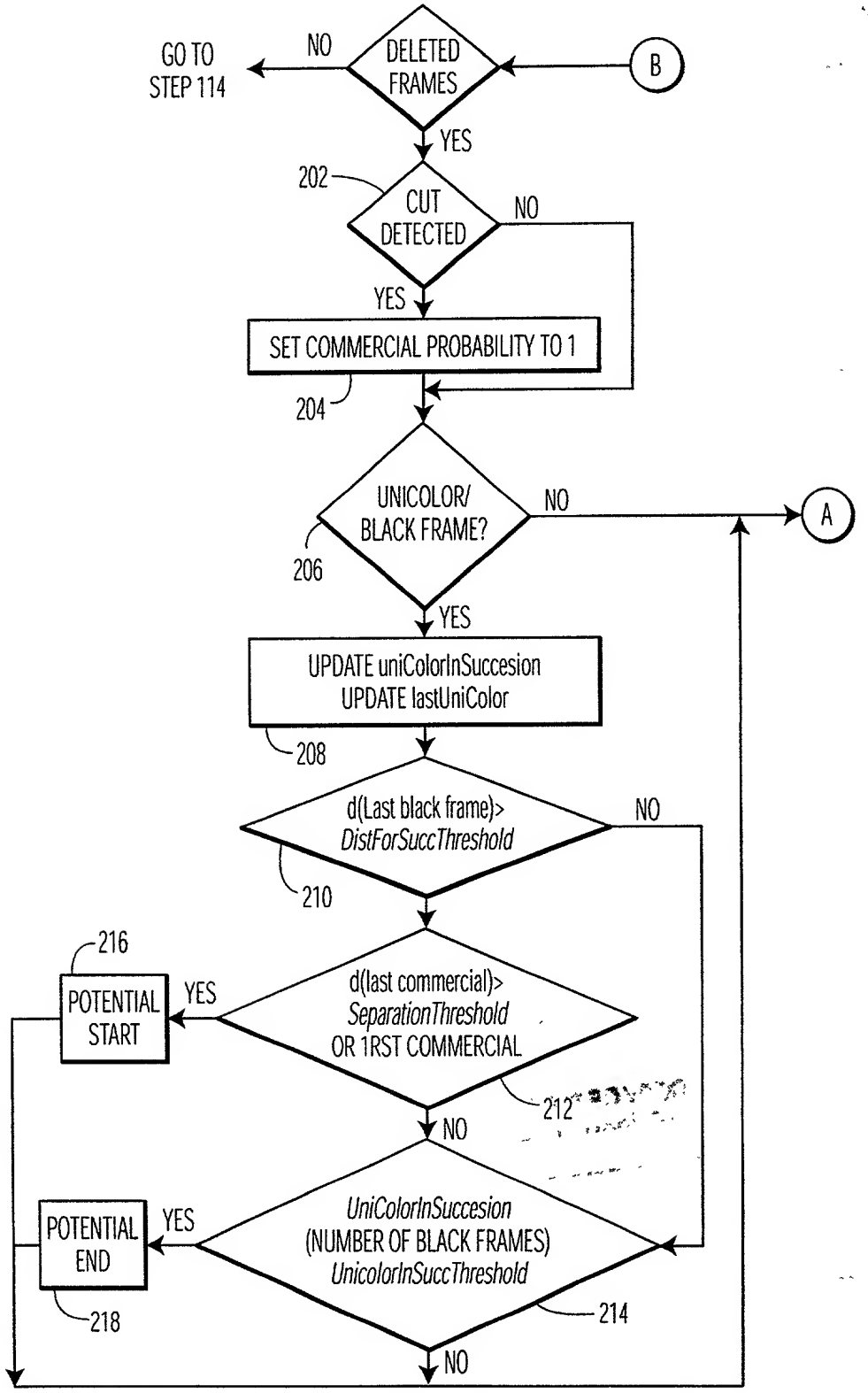
DELETED FRAMES
NO
GO TO STEP 114
B
YES
202
CUT DETECTED
NO
YES
SET COMMERCIAL PROBABILITY TO 1
204
UNICOLOR/ BLACK FRAME?
NO
A
206
YES
UPDATE uniColorInSuccesion
UPDATE lastUniColor
208
d(Last black frame)> DistForSuccThreshold
NO
210
216
POTENTIAL START
YES
d(last commercial)> SeparationThreshold OR 1RST COMMERCIAL
212
NO
POTENTIAL END
YES
UniColorInSuccesion (NUMBER OF BLACK FRAMES) UnicolorInSuccThreshold
214
218
NO

FIG. 4A

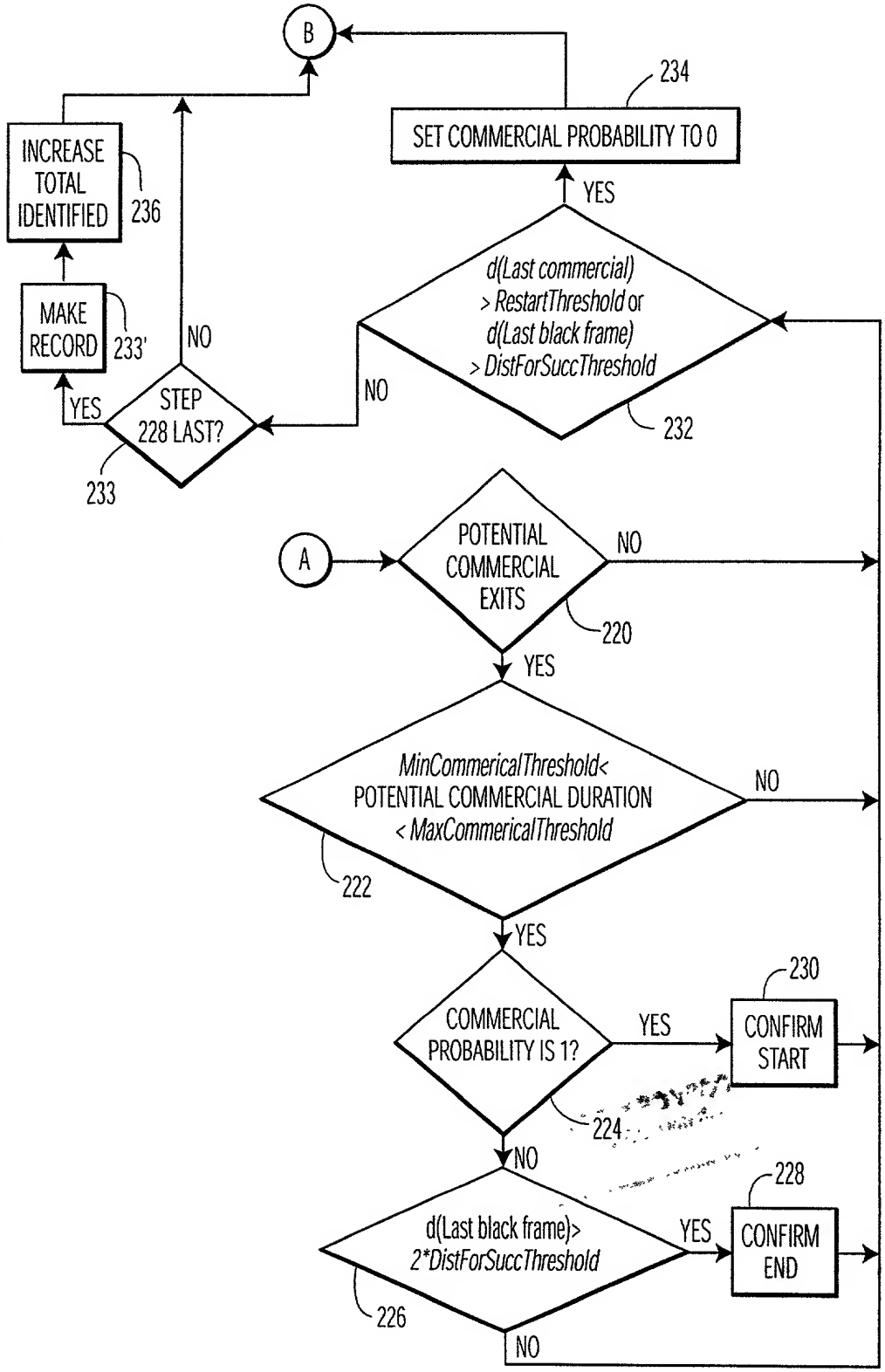
B
234
SET COMMERCIAL PROBABILITY TO 0
YES
d(Last commercial) > RestartThreshold or d(Last black frame) > DistForSuccThreshold
232
NO
INCREASE TOTAL IDENTIFIED
236
MAKE RECORD
233'
NO
YES
STEP 228 LAST?
233
A
POTENTIAL COMMERCIAL EXITS
NO
220
YES
MinCommericalThreshold< POTENTIAL COMMERCIAL DURATION < MaxCommericalThreshold
NO
222
YES
230
COMMERCIAL PROBABILITY IS 1?
YES
CONFIRM START
224
NO
228
d(Last black frame)> 2*DistForSuccThreshold
YES
CONFIRM END
226
NO

FIG. 4B